# The Revolution in Military Affairs and Security of Japan

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## INTRODUCTION

In the early 1980's, a part of the Red Army led by Marshal Nikolai Ogarkov became concerned with the coming transformation of warfare.[1] This group was predicted that the rapid development of computer systems and high-technology weapons such as employed by NATO would lead to drastic changes in way of warfare. Ogarkov called it the "Military Technological Revolution."[2]

His prophecy came to pass in 1991 with the victory of the U.S.-led multinational force in the Gulf War. With the rapid progress of information technology, the concept of the Revolution in Military Affairs (RMA) has spread. In 1999, the air campaign in Kosovo made a vivid impression on the world of the superiority of the U.S. armed forces. Consequently, strategic studies experts took note of the impact of the RMA on security affairs, and Japan is no exception.

After several years of research at strategic institutes, the Japanese Defense Agency (JDA) started its own study of the RMA and published their research in September 2000.[3] This study analyzed Japan's conditions for promoting the RMA and the direction the Japanese RMA will take.

## CONCEPTUAL ANALYSIS ON THE EMERGING RMA

The number of scholars and defense officials who focus on the emerging RMA is increasing and has lead to the discussion of many RMA related topics. These views can be categorized into three groups.[4]

The first one is "RMA supporters" who maintain that the transformation of weapons, military technology, organization, and doctrine will bring about a drastic improvement in military efficiency. The second group is the "Asymmetrical conflict school" who emphasize the importance of asymmetrical warfare, i.e., guerilla warfare and counter terrorism. They maintain that the most likely threat in the post-Cold War world is non-conventional forces because the Gulf War demonstrated the superiority of the conventional military capability of the West. This school predicts that facing such a strong opponent, the next challenger will choose to attack the weak flank of the West

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[1] For Soviet views of the transformation of warfare, see: Mary C. FitzGerald, "The Soviet Image of Future War: The Impact of Desert Storm," in Willard C. Frank, Jr. and Philip S. Gillette, eds., *Soviet Military Doctrine from Lenin to Gorbachev 1915-1991* (CT: Greenwood Press, 1992), pp.363-386; Kimberly Marten Zisk, *Engaging the Enemy: Organization Theory and Soviet Military Innovation*, 1945-1991 (NJ: Princeton University Press, 1993), pp.120-177; Jacob W. Kipp, "The Labor of Sisyphus: Forecasting the Revolution in Military Affairs During Russia's Time of Troubles," in Thierry Gongora and Harald von Riekhoff, *Toward a Revolution in Military Affairs?: Defense and Security at the Dawn of the Twenty-First Century*, (CT: Greenwood Press, 2000), pp.87-104.

[2] James R. Blaker, *Understanding The Revolution in Military Affairs: A Guide to America's 21st Century Defense*, Progressive Policy Institute Defense Working Paper, No.3 (Washington, D.C.: Progressive Policy Institute, 1997), pp.4-8; Theodor W. Galdi, " Revolution in Military Affairs?: Competing Concepts, Organizational Issues," *CRS Report for Congress 95-1170*, (Washington, D.C.: Congressional Research Service, December 11 1995), pp.2-4.

[3] Office of Strategic Studies, Defense Policy Division, Defense Policy Bureau, Japan Defense Agency, *Info-RMA: Study on Info-RMA and the Future of the Self-Defense Forces* (December 2000)(http://www.jda.go.jp/e/pab/rma/rma_e.pdf).(Japanese version was issued in September 2000)

[4] Sugio Takahashi, "RMA to 21 Seiki no Nihon no Anzenhosho," (trans. by the author: "The Impact of RMA on the Security of Japan"), *Shinbouei-Ronshu*, (trans. by the author: *The Journal of National Defense*), Vol.27, No.4 (March, 2000), pp.57-74.

through terrorism or weapons of mass destruction (WMD). The third group is the "Skeptics." They are skeptical that current military improvements represent a "revolutionary change," and maintain that a gradual, rather than revolutionary, progression of military equipment and organization (corresponding to advances in technology) is now taking place.

The last two groups are critical of the current movement in support of the RMA. Their position can be summarized in three points: revolution versus evolution; strategic relevancy of the current trend; and the vision of future warfare. The following section will analyze these arguments and try to clarify some problems arising in the current debate.

**Revolution or Evolution?**

Mainly the "skeptics" points out this question. They tend to believe that "RMA" is, in fact, not revolutionary.[5] According to their argument, the "revolutionary" aspects of the present and future warfare, which is emphasized by "RMA supporters," are only an accumulation of evolutionary steps. Of course, they do not deny that revolutionary change has occurred, and can occur, in history. Nor do they deny that the fruits of the information revolution have improved current military capabilities. Their point is whether the information revolution brought about "revolutionary change" or not.

Undoubtedly, some elements of future warfare as depicted by RMA supporters, including precision-guided munitions (PGMs), have existed for some decades. Or as they maintain, even after the information revolution, the improvement of military capability will be constrained by rules of physics. Although computer capabilities is expanding exponentially, it is difficult to make a corresponding quantum leap of certain other technology such as that of the combustion engine, which remains an indispensable part of a number of weapon systems.

Moreover, the skeptics point out that the importance of individual soldiers and commanders in complicated battlefield situations will not be decreased. Further, issues of air superiority as a determinant factor of the outcome of battle and the use of ground forces as a determinant of last resort never lose their importance, even on the battlefield of the future.[6] In sum, they concede that the information revolution may transform military affairs, but do not believe that it will bring about "revolutionary change."

However, whether the current RMA is "revolution" or "evolution" depends on the subjective judgment of each individual. What some people believe to be "revolution" might be "evolution" in the opinions of others. In that sense, whether the military transformation that is now unfolding which was sparked by the information revolution leads to "revolutionary change" or only results in evolutionary change will have to be concluded by a future historian.

**Does It Have Strategic Relevancy?**

The "Asymmetrical conflict school" asks the question, "Does it have strategic relevance?" They point out that if the argument about the RMA concentrates on military

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[5] Brian R. Sullivan, "The Future Nature of Conflict: A Critique of 'The American Revolution in Military Affairs' in the Era of Jointery," *Defense Analysis*, Vol.14, No.2 (UK: Brassey's, 1998), pp.91-100; Stephen Biddle, "The Past as Prologue: Assessing Theories of Future Warfare," *Security Studies*, Vol.8, No.1 (Autumn 1998), pp.1-74; Michael O'Hanlon, "Can High Technology Bring U.S. Troops Home?," *Foreign Policy*, No.113(Winter 1998-99),pp.72-86; Michael O'Hanlon, *How to Be a Cheap Hawk: The 1999 and 2000 Defense Budgets*, (Washington, D.C.: Brookings Institution Press, 1998)pp.102-111.

[6] Ibid.; Biddle, "The Past as Prologue: Assessing Theories of Future Warfare," pp.12-31.

capability exclusively, without political and strategic consideration, it will be irrelevant because military force is only one of the means employed to attain a political goal. Their argument implies that the emerging RMA must have relevance to the nation's policies and strategy.

They place more importance on change in the strategic situation than on technological transformation. In their view the most critical factor for transformation is not the *information revolution* but *the end of the Cold War*. In brief, the driving force for the emerging RMA is that the end of the Cold War diminished the probability of a massive conventional conflict in Europe. This, in turn, enabled for the U.S. to concentrate more resources on *quality* rather than *quantity* in its armed forces.[7]

From the perspective of this school of thought, clear political and strategic goals should be set before those of the emerging RMA.[8] Some scholars who hold this opinion question the vision of future warfare held by RMA supporters. These supporters depict future warfare as large-scale conventional conflict analogous to the Gulf War, during which armed forces of the U.S. and Western countries showed their overwhelming superiority in a conventional conflict. These scholars expect a future opponent of the U.S. or other advanced country not to employ conventional weapons. Instead, a country seeking regional hegemony will avoid the advanced country's conventional way of war by resorting to "asymmetrical conflict," i.e., using weapons of mass destruction (WMD) or attacking a vulnerable part of their opponent's society through the use of terrorism or guerrilla warfare.[9]

These scholars severely criticize the current direction of the U.S.-style RMA aimed at a large-scale conventional conflict as being of lesser strategic relevance. They point out two reasons: first, such conflicts are unlikely to break out; second, even if such a conflict occurs, advanced countries will keep their superiority over challengers only if they maintain the current capability levels of their armed forces. Since they do not foresee a future large-scale conflict, they promote the improvement of military capability to deal with asymmetrical conflict because these are more likely to occur and it is difficult for the current force structure to respond these kinds of situations.

However, post-RMA forces can have capabilities that are appropriate for both large-scale conflict and asymmetrical conflict. The core factor of information-based RMA is to share information among each unit on a real-time basis. Even in counter-guerrilla and counter-terrorist operations, real-time information-sharing systems will greatly contribute to effectively engaging in these types of conflicts.

**The Question of the Vision of Future Warfare**

The vision of the future warfare, as depicted by RMA supporters, is based on the ability to be aware of events on the battlefield through advances brought about by the information revolution. Some scholars, however, doubt that advanced information technology can diminish the "fog of war."

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[7] Lawrence Freedman, *The Revolution in Strategic Affairs*, Adelphi Paper, No.318, (Oxford: Oxford University Press, 1998), p.28, p.32.

[8] Theodor W. Galdi, " Revolution in Military Affairs?," p.25; Jeffrey Cooper, *Another View of the Revolution in Military Affairs* (Carlisle Barracks, Pennsylvenia: U.S. Army War College Strategic Studies Institute, 1994), pp.9-11, 30.

[9] Steven Metz and James Kievit, *Strategy and the Revolution in Military Affairs: from theory to policy* (Carlisle Barracks, Pennsylvenia: U.S. Army War College Strategic Studies Institute, 1995), http://carlisle-www.army.mil/usassi/ssipubs/pubs95/stratrma/stratrma.htm; Freedman, *The Revolution in Strategic Affairs*, pp.33-48.

First, although sensors such as reconnaissance satellites or unmanned aerial vehicles (UAVs) will be able to gather information on open geographical features such as a desert, it is difficult for them to identify the location of units deployed in areas with many obstacles such as a forest or urban area.[10] Moreover, if multiple countries pursue information-based RMA, stealth technology will advance in parallel. If stealth technology proliferates, the difficulty to detect an opponent will be increased and the limit of battlespace awareness will reemerge. As a result, the "fog of war" will remain even in the battlefields of the future. If advanced sensor and information networks were to bring about "perfect battlespace awareness," post-RMA forces could suppress a battlefield by destroying targets with long-range PGMs. However, if one cannot identify the actions and locations of an enemy, the commander will have to dispatch ground force to destroy enemy forces in the field.

Moreover, in the post-RMA battlefield, it will be difficult to determine the combat ability of opponents and allies from the analysis of the number and performance characteristics of each weapon platform, such as airplanes and tanks. The information-based RMA will change measures of military capability from the performance of individual platforms to the performance of the system as a whole.[11] Therefore, uncertainty might be increased at the strategic and operational levels and even highly advanced systems for battlespace awareness cannot see the "inner-space" of an adversary commander.

In addition, various problems might occur in an actual operation because the final actors in processing information are human beings. For example, if the quantity of information overwhelms cognitive capabilities of the person at the controls, they will not take the appropriate action for a given situation, particularly if it is changing rapidly. Although it is relatively easy to *increase the capability of an information processing system*, it is impossible to drastically *improve the ability of the human operator to process information* drastically. Also providing battlefield information not only to a commander but also to other superiors such as national leaders can lead to ambiguity as to who is in charge of a situation. In that case, some higher commanders might intervene in the decisions of junior officers or junior officers may become dependent on a higher commander. Finally, the construction of the information network depicted by RMA supporters is not easy to achieve although it might be theoretically possible.

## THE EMERGING RMA AND SECURITY OF JAPAN

As shown above, skepticism about the emerging RMA exists. In sum, the skeptics question the feasibility of the visions of RMA advocates and whether information revolution brings about a corresponding revolutionary change in the military sphere. Based on these arguments, the questions of whether "RMA" will be realized or not and what sort of impact the "emerging RMA" will have on Japanese security policy will be analyzed in this chapter.

### Is This the Revolution?

First of all, one must make a judgment whether the goal of "the emerging RMA," the current movement for introducing advanced information technology, deserves to be termed a "revolution." However, answering this question is no easy task. Certainly it is true that the information revolution, which influences every aspect of human life, is producing a significant impact on the military field. However, even though the

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[10] Biddle, "The Past as Prologue: Assessing Theories of Future Warfare," p.26.
[11] Eliot A. Cohen, "A Revolution in Warfare," p.53.

introduction of advanced information technology is improving military capabilities, it does not necessarily mean that information technology will lead to a deep transformation, one that is worthy of being called a "revolutionary" change. Such a kind of change is only the *Information Revolution in Military Affairs*. It is not the *Revolution in Military Affairs*. The precondition for declaring a "Revolution in Military Affairs" is that technological change develops in sync with changes in tactics, doctrine, and organization.

However, although information revolution leads to technological change in military affairs, tactical, doctrinal, and organizational transformation will not be brought about by technological factors alone. Strategic and political factors define whether such changes are needed or not because military force is but one means of a nation's foreign policy and the strategic condition of a country defines the character of its armed forces.

Therefore, before thinking about whether "the emerging RMA" is a revolution or not, it is necessary to examine the strategic condition. At the abstract level, one should consider two strategic factors. The first is which situation has priority -- the threat that is being faced at present or preparing for risks of the future? In the matter of pursuing revolutionary transformation, performance of the armed forces might be decreased temporarily during the transition period. In that sense, it is difficult to make revolutionary changes if the current threat is the dominant consideration in defense planning.

If one makes a decision that preparations for the future should be given priority, they must answer the second question. That is, what kind of military will be necessary for coping with the risks of the future and how will it differ from the currently existing situation. If linear improvement of the current capability has relevancy for the assumed risks in the future, it is not necessary to make revolutionary change. However, if that is not sufficient, one must face the challenge of making the "revolution" a reality.

In sum, examining existing conditions will help to determine if the "emerging RMA" is revolutionary or not. Before analyzing the strategic situation of Japan, the situation of the U.S., which is at the forefront of the emerging RMA, will be considered in the next section.

**The U.S. Strategic Environment**

From the perspective of the emerging RMA, the following five elements can be used as the strategic background of the U.S.:

A. The U.S. is on the cutting edge of the information revolution in the world.

B. The need for preparing for large-scale conflicts has decreased since the end of the Cold War.

C. Society's sensitivity to the U.S. armed forces battlefield casualties has increased drastically.[12]

D. The importance of acquiring public support through the use of mass media has also increased because of the information revolution and globalization of society.

E. Even in the post Cold War world, the need for the forward deployment of forces and power projection capability continues.

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[12] Edward N. Luttwak, "Toward Post-Heroic Warfare," *Foreign Affairs*, Vol.74, No.3 (May/June 1995), pp.109-122.

In sum, the U.S. needs to make its armed forces lighter to be able to respond to various regional conflicts with a minimum of casualties. Based on these factors, it is very reasonable to expect the U.S. to construct joint information networks to connect dispersed units and to pursue long-range PGM-intensive warfare by utilizing advanced information technology. If the U.S. achieves RMA, U.S. armed forces will acquire some advantage over adversaries, which are relevant to the strategic situation at present and in the foreseeable future.

**Strategic Environment of Japan**

As a matter of course, the strategic condition of Japan is very different from that of the U.S. Therefore, if one analyzes the relevance of the emerging RMA based on the U.S. model, it is impossible to consider the implication of the emerging RMA on Japan. This section analyzes the Japanese strategic condition.

These following seven factors will influence the trend of the RMA for Japan:

A. Strategic Passive Defense Posture (Exclusively Defense-Oriented Policy).

The precondition of the U.S. vision for RMA is its unique national strategy, which is to maintain its forward deployment and power projection capability. Conversely, Japan takes a strategic position of a passive defense strategy, i.e., an "Exclusively Defense-Oriented Policy," which is consistent with the spirit of Japan's Constitution.[13] It means that defense forces cannot be employed unless, and until, an armed attack is mounted on Japan by another country. Further, the scope of the use of such force is to be kept to the minimum necessary level. Therefore, the weapons and capabilities of the post-RMA Self Defense Force (SDF)[14] will necessarily be different from those of the U.S. forces. If the JDA decides to pursue the RMA, it should promote projects for the RMA that take these basic differences into account.

B. Need to keep interoperability between the SDF and the U.S. armed forces.[15]

The U.S. places importance on maintaining and strengthening capabilities for

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[13] Japanese defense policy is based on article 9 of the Constitution.

Article 9: *1) Aspiring sincerely to an international peace based on justice and order, the Japanese people forever renounce war as a sovereign right of the nation and the threat or use of force as means of settling international disputes. 2) In order to accomplish the aim of the preceding paragraph, land, sea, and air forces, as well as other war potential, will never be maintained. The right of belligerency of the state will not be recognized.*

This part of the Constitution does not forbid to have armed forces for defense of the country. On the defense white paper of Japan explains the view of Japanese Government. See Defense of Japan (Tokyo: Urban Connections, 1999), p.53.

*…As long as Japan remains an independent nation, it is recognized beyond doubt that these provisions do not deny the inherent right of self-defense that Japan is entitled to maintain as a sovereign state. Since the right of self-defense is thus not denied, the Government interprets this to mean that the Constitution allows Japan to possess the minimum level of armed strength needed to support the exercise of that right. On the basis of this understanding, the Government has, as part of its exclusively self-defense-oriented basic policy on national defense under the terms of the Constitution, preserver the Self-Defense Forces(SDF) as an armed organization, continued to equip them and sought to prepare them for operational use.*

[14] "Self Defense Force" is the name given to the Japan's armed forces.

[15] For an analysis of the current problems with, and future of, the Japan-U.S. alliance, see Michael J. Green and Patrick M. Cronin, eds., *The U.S.-Japan Alliance: Past, Present, and Future* (NY: Council on Foreign Relations Press, 1999).

joint warfare with allied countries and friendly countries. Therefore, as indicated above, the JDA must take into consideration the maintenance of the interoperability of the SDF and U.S. forces in accordance with Japanese Defense Policy.

C. Need for preparation of the pre-RMA force.

Although major powers will implement some measure of RMA, there will be some countries that will not, but rather pursue improvement of their arsenals through evolutionary modernization. Therefore, Japan should make preparations for the possibility of a fight against a pre-RMA force, especially, if the pre-RMA power attacks with weapons of mass destruction (WMD), or through terrorism or guerilla warfare.

D. Widening roles of SDF.

With the dramatic change in the strategic environment in the world, the role of armed forces is widening to now include peacekeeping operations (PKO) and humanitarian relief. Such mission capabilities will be needed for the future even if changes occur in the security environment. Therefore, to respond to various situations, from those such as disaster relief or PKO to high intensity regional conflict, it is necessary for Japan's SDF to reconsider its current capabilities. This includes joint operation among each SDF service, organization of flexible units, building systems for sharing information among the SDF services and other governmental organizations, as well as the civilian sector.

E. Development of Information Revolution in society.

Although information revolution makes society more efficient, it creates vulnerabilities as well. It is necessary for the SDF to acquire the capability to deal with cyber-warfare.[16] In addition, the SDF must take cyber- war into account in its own defense buildup and operations.

F. Financial Situation.

Currently, the fiscal condition of Japan is very poor.[17] If the JDA/SDF decides to promote projects for the RMA, it must develop and employ new equipment systems and make its organization and acquisition process more efficient.

**Should Japan Pursue the RMA?**

In sum, there are many differences between the strategic condition of Japan and that of the U.S. So, the question may be asked, "Is the RMA a bad option for Japanese security?" The answer is "no." The JDA presented five reasons why Japan should pursue RMA in a report by the Office of Strategic Studies which was issued in September 1999, *Info-RMA*[18]. In addition, it is impossible to create the equipment and organization required by the RMA in the short term.

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[16] In Japan, the National Police Department is in charge of cyber crime. On the other hand, SDF has shown an interest in defense against cyber attack. Presently, there is no clear demarcation of cyber defense responsibilities between these organizations.

[17] The sum of Japanese national debt is 364 trillions yen(FY2000). This is equivalent to 73% of the GDP of Japan.

[18] Japan Defense Agency, *Info-RMA*.

A. The Advantage of the Post-RMA Force.

The post-RMA force can engage a pre-RMA force advantageously. In addition, it can respond more effectively to asymmetrical threats such as guerrilla warfare and terrorism when compared to the present military regime.

B. Societal Sensitivity.

One must consider the particular sensitivity to casualties, due to the decreasing birth rate and high regard for human life. This sensitivity is exacerbated if the conflict has little effect on vital Japanese interests. Moreover, as indicated above, Japanese defense policy is based on passivity, i.e., exclusively defense-oriented policy. So, there is a high probability that some part of the Japanese mainland will become a battlefield if another country attacks Japan. In this case, it is necessary to limit collateral damage to civilians and the social infrastructure. The emerging RMA meets these social demands because it enables Japan to limit collateral damage from long range.

C. Technological Advantage of Japan.

Since Japan is one of the leading technological nations in the world it has the wherewithal for the emerging RMA. Taking advantage of Japan's superior technology, the SDF can pursue the post-RMA defense capability efficiently.

D. U.S. Policy for the RMA.

By taking advantage of its overwhelmingly advanced information technology, the U.S. actively promotes various measures for RMA. Therefore, Japan should promote the study of RMA because the Japan-U.S. alliance is the most critical underpinning of Japan's security.

E. Demographic Trend of Japan.

The SDF will have to decrease the number of soldiers because the birthrate of Japanese society is very low. The SDF must increase its operational efficiency introducing information technology and pursuing RMA will help solve this problem.

Based on this analysis the necessity of the RMA for the JDA/SDF is apparent. This may lead to another question, "How will Japan realize RMA?" In order to answer this, the current situation of SDF and the principles of Japanese RMA will be considered below.

## RMA OF JAPAN

### Current Situation of the Self Defense Force

Until now, Japan's steps toward the RMA have lagged far behind those of the U.S. Although *National Defense Program Outline in and after FY1996 (1996 NDPO)*[19] and

[19] In this document, some aspects of RMA are implied in the following excerpts:
*It is appropriate that Japan's defense capability be restructured, both in scale and functions, by streamlining, making it more efficient and compact, as well as enhancing necessary functions and making qualitative improvement to be able to effectively respond to variety of situations and simultaneously ensure the appropriate flexibility to smoothly deal with the development of the changing situations.*

*Mid-Term Defense Program (FY1996-FY2000)*[20] refer to some kind of RMA elements, in fact, they were made without any intention of pursuing RMA.

However, after 1999, there has been a great increase in interest in the RMA within the SDF. In February 1999, the Office of Strategic Studies, Defense Policy Division, Defense Policy Bureau, JDA, began a study of the RMA in the context of the transformation of the SDF. In July 2000, one of the directors general was assigned to make SDF policy for the information revolution and his office published *Information Technology Revolution of JDA/SDF* in August 2000. It used three keywords for the information revolution of SDF as "Quality" (establishing an advanced information network), "Utility" (improving the performance of C4ISR), and "Security" (keeping the network secure). In September 2000, the Office of Strategic Studies issued *Info-RMA: Study on Info-RMA and the Future of the Self-Defense Forces.* In this report, it set preconditions for Japanese RMA.

In addition, *Guidelines for Comprehensive Measures for Information Technology Revolution of the JDA/SDF* was issued in October 2000. It describes not only battlefield-related concepts, but also comprehensive matters including administrative affairs, acquisition systems, human and technological infrastructure, and technological cooperation with other countries. It, in particular, explains the plan for building an advanced information network and melding the separate visions of each service of the SDF for the RMA -- G-*Net* of the Ground Self Defense Force, which links information from a unit in the field to the General Staff Office; *Maritime Operation Force System* and *Command and Control Terminal* of the Maritime Self Defense Force, which enhances information sharing among vessels at sea; improvement of the BUDGE system of Air Self Defense Force, which is the command and control system for the air-defense of Japan. This is a significant step for the SDF, but, there are at least two deficiencies when compared to the U.S. program. First, the SDF does not have a mechanism for sharing information among its services. They, therefore, lack the necessary infrastructure for joint operations. Secondly, the performance of each system lags far behind that of the U.S. For example, no MSDF ship has Cooperative Engagement Capability, and ASDF does not have Link-16 capabilities.

In the beginning of 2001, the JDA introduced a new defense build-up program: *Mid-Term Defense Program (FY2001-FY2005)*. This program is a "shopping-list" for the next five year period and it puts emphasis on information technology: building an advanced network by integrating each service's network, promoting information sharing from frontline units to headquarters in Tokyo by creating an advanced command and control system, acquiring the capability for cyber protection by strengthening information security.

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*Efforts will be made to enhance technical research and development that contributes to maintaining and improving the qualitative level of Japan's defense capability to keep up with technological advances.*

[20] Similarly in this document:
*Concerning command, control and communication, to ensure command and control structures by which the central authority can send timely and appropriate directives from joint and integrated points of view, when the headquarters building of the Defense Agency is relocated, build up a New Central Command System (NCCS). In addition, continue to promote various measures such as establishment of the Integrated Defense Digital Network (IDDN), improvement of command and control capability, and utilization of communication via satellite.*

**Principles of RMA for Japan**

Based on the analysis above, the following seven principles represent the future guidelines for defense build-up program if the JDA/SDF decides to pursue RMA[21]. Although the current defense build-up is not based on these principles, they are suggested in the JDA Office of Strategic Studies', publication *Info-RMA*.

A. Information

Building information networks, which can share information from the battlefield among all units in real-time while making good use of C4ISR will make a quantum improvement of battlespace awareness and lethality. As indicated above, since Japan takes a passive defense posture (exclusively defense-oriented policy), the JDA/SDF can limit its operations to the area surrounding the home islands. Therefore, the JDA/SDF should emphasize the development and employment of various sensors to detect invasion in its very early phase to be aware of the movements of an approaching enemy.

B. Jointness

The JDA/SDF should adapt its organization, tactics and equipment to a variety of military roles. In addition, the development of information technology will widen the theater of battle. Taking elements for joint operation into account will increase lethality and flexibility.

C. Quickness

A quick decision-making cycle, which can swiftly respond to the rapidly changing situation of a battlefield, can facilitate a swifter tempo for operations. Creating such a decision-making cycle will be indispensable to the development of an advanced information system by taking advantage of artificial intelligence information processing to assist in quicker decision-making by a commander. In addition, the improvement of unit mobility will reduce deployment time.

D. Efficiency

The JDA/SDF should construct systems which can operate PGMs efficiently and improve battle management capabilities. These systems will make the SDF more efficient. Moreover, organization and tactics that can effectively take advantage of PGMs will limit collateral damage in Japanese territory. This is imperative since Japan must engage with the enemy on its own territory.

E. Flexibility

In order to respond to a rapidly changing post-RMA battlefield and to the various roles of the military, the command structure and military organization must be reorganized using information technology.

F. Protection

Since a post-RMA SDF will depend heavily on information networks, protecting the network by strengthening security and including redundancy are critical factors. In addition, considering the current trend toward the proliferation of weapons of mass

[21] Office of Strategic Studies, *Info-RMA*, pp.7-9.

destruction, the need to defend against cruise missile and ballistic missile attack will be increased, particularly in regards to ensuring the survivability of weapon platforms and sensors.

G. Interoperability

It is necessary to maintain interoperability between SDF and U.S. forces from the view of the RMA and take information sharing among foreign armed forces (other than the U.S.) into account during peacekeeping operations. It will enable Japan to share information with the U.S. in real-time and permit Japan to quickly coordinate integrated operations.

According to these seven principles, the goal of post-RMA SDF is summarized as follows:

> *Sharing real-time information among each unit of the Ground, Maritime, and Air-Self Defense Forces based on redundant and invulnerable information networks comprised of various sensors; securing interoperability between SDF and U.S. forces; and establishing a defense posture that could perform most efficiently with a minimum of reaction time, and could respond flexibly in accordance with rapidly changing situations.*[22]

**Agendas for the Future**

In sum, there is no alternative for the JDA/SDF other than pursuing the RMA. However, it cannot be the same as that of the U.S. RMA. In that sense, Japan must seek its path toward RMA. Japan faces three challenges on its way to a "Japanese" RMA.

How to Build Post-RMA SDF?

In conclusion, the essence of the U.S.-style RMA is to share information, and its program can be summarized by these elements: digitalization of the ground units (army), Cooperative Engagement Capability of warships (navy), and making the best use of long-range PGMs and stealth technology (air force). Among these, one can especially see the change of air warfare, e.g., the Gulf War and Kosovo air campaign. This style of post-RMA force will easily infiltrate the air-defense systems of an opponent and destroy important targets even when located far from the front. If a state transforms its armed forces into this style RMA, it can optimize its offensive operations.

Under the current Japanese defense policy, which is exclusively defense-oriented, it is unreasonable for Japan to pursue this kind of "offensive" RMA. On the other hand, as referred to above, there are many reasons why the SDF should favor RMA. The most important point is that the organization, equipment, and doctrine of a post-RMA SDF will be different from those of U.S. forces. SDF must seek a way to achieve "defensive" RMA.
From this point of view, the essence of Japanese RMA should be digitalization of ground force, joint information network, and the development of tactical-level PGMs. Theater-level PGMs, like the Tomahawk cruise missile, are too long range to use in defensive operations.[23] The need for stealth technology is very low because the main mission of ASDF is not to attack ground targets but to intercept attacking forces. Therefore, ASDF regards aircraft climbing power and air superiority capabilities as more important than stealth technology.

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[22] Quoted from *Info-RMA*, p.9.
[23] But acquisition of Tomahawk itself isn't banned by Constitution.

Based on this basic framework, Japan has three options for RMA.

A. Full-scale RMA.

*Based on joint information networks, promoting digitalization of all units of the GSDF and making organization and doctrine for making good use of tactical-level PGM.* This option is not completely appropriate for Japan for two reasons. Firstly, it seems that no countries in the surrounding area can realize the RMA until at least some decades into the future. Even in the pre-RMA SDF, Japan can intercept an invasion force from a neighboring country before they reach Japan's home islands. Secondly, this option will be very costly and, as indicated above, Japan's current fiscal condition will not permit a large increase in defense expenditures.

B. Partial RMA.

*Building joint information network and employing tactical-level PGMs but digitalization is limited to one brigade or division. Other part of GSDF remains a pre-RMA force.* This option can both save money and permit the SDF to acquire the essence of the RMA. The JDA can expand RMA to other units of the SDF when the strategic situation demands it.[24] However, as in option A, if the pre-RMA SDF can remain superior to the invading forces from surrounding countries, it will be difficult to create a consensus for building post-RMA forces. If, however, Japan changes its defense policy to send its force to peacekeeping operations, this option is favorable.

C. Moderate RMA.

According to *Guidelines for Defense Cooperation between Japan and the U.S. 1998*, Japan provides logistical support for the U.S. forces in case of regional contingencies which may impact Japan, short of a direct invasion.[25] From this perspective, the SDF must keep up with the digitalization of the logistics system of the U.S. Without it, Japan cannot provide logistical support for a post-RMA U.S. force and the credibility of the alliance could erode. Therefore, in this option, *creating a logistic support system that is interoperable with the U.S.* is a top priority. A joint information network will be deployed and the organization of a post-RMA unit will be deprioritized.

In conclusion, considering the regional strategic situation and domestic conditions, especially financial paucity, the SDF should choose option C. This may be an initial step, and the JDA may gradually take further steps toward the implementation of option B.

<u>Interoperability between the U.S.</u>

As is widely known, among the U.S. and NATO allied countries, many problems of

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If the modernization of China's armed forces includes a rapid development of amphibious capabilities, and Sino-Japanese relations sour, the JDA may need to consider full scale RMA.

[25] The aim of *The Guidelines for Japan-U.S. Defense Cooperation* is written in the first part of that agreement. *The aim of these Guidelines is to create a solid basis for more effective and credible U.S- Japan cooperation under normal circumstances, in case of an armed attack against Japan, and in situations in areas surrounding Japan. The Guidelines also provide a general framework and policy direction for the roles and missions of the two countries and ways of cooperation and coordination, both under normal circumstances and during contingencies.*

interoperability occurred during the 1999 Kosovo air war such as: compatibility of secured information, precision engagement capability, and intelligence gathering among others.[26] Will it become an issue in the Japan-U.S. alliance as well?

Such interoperability problems in the Japan-U.S. alliance are different from those of NATO. The Japan-U.S. alliance does not engage in multinational integrated actions like the NATO-U.S. operations. The NATO command structure consists of a commander and the forces of other nations subordinate to that commander. Under this type of defense cooperation, units of different countries will take part in the same mission in the same geographical areas. However, according to the current structure for role and mission sharing between SDF and the U.S. forces, SDF implements defensive operations and the U.S. force implements offensive operations. They do not conduct the same mission, in the same area, under a single command structure. In this sense, a problem of interoperability for combat in the same battlefield is not necessarily a serious problem for Japan-U.S. defense cooperation. On the other hand, under *1998 Defense Guidelines*, Japan does provide logistical support to the U.S. Only in this situation will the SDF and U.S. forces be operating in the same area. Without a digitalization of logistics forces that is compatible with the U.S. system, some serious problems could occur in Japan-U.S. defense cooperation.

Therefore, digitalization of logistics must be given a high priority. However, if Japan changes its defense policy fundamentally and plays a more active role in international security, this priority will change and digitalization of combat units will be important as well.

Missile Defense System

After the 1998 North Korean *Taepo Dong* ballistic missile launch, the JDA decided to start cooperative ballistic missile defense (BMD) research with the U.S.[27] To say nothing of the ballistic missile threat from North Korea, the proliferation of weapons of mass destruction and ballistic missiles presents serious concerns for all *status quo* countries such as Japan and the U.S. Moreover, under the current strategic situation in Northeast Asia, it is not unreasonable for Japan to assume that some ballistic missiles, either of China and North Korea, are aimed at its territory. Therefore, promoting technological research on BMD is a reasonable option for Japan.

It is worth exploring the conceptual relationship between BMD and RMA. Examining the essence of the RMA, one finds that it is information sharing through advanced technology and the systematic use of sophisticated high-tech weaponry. Gathering information from sensors such as satellites, sharing it among units through a broad-band information network, and developing advanced "hit-to-kill" interceptors such as Theater High Altitude Area Defense or Navy Theater Wide Defense are critical components of BMD. Therefore, in quality, the essential elements of BMD are identical to the information-based RMA and one can say BMD is a part of the RMA.

Considering the current strategic situation in Northeast Asia BMD is a more pressing concern than the digitalization of ground units. On the other hand, there are some compatible elements between BMD and digitalization such as the concept of battle management and joint operations. In a sense, BMD operations are conducted under a specialized operational environment: detecting the trajectory of a ballistic missile is much

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[26] James P. Thomas, *The Military Challenges of Transatlantic Coalitions*, Adelphi Paper No.333, (Oxford: Oxford University Press, 1998).

[27] Whether SDF deploys BMD system or not will be decided in the future.

easier than finding an enemy ground unit in a natural terrain such as forest. A process to distribute each target to an interceptor is simpler than making the decision as to which unit should launch a weapon against an opponent on a complicated battlefield.

Therefore, by promoting projects for BMD, the SDF will be able to acquire the critical essence of the RMA. Once the SDF employs a BMD system, the number of obstacles to the digitalization of other kinds of operations can be reduced.

In addition to ballistic missiles, the threat of cruise missiles is increasing. If information-based RMA proliferates, regional countries, which are now enjoying economic development, will deploy land attack cruise missiles. In such an environment, the SDF must acquire the ability to counter effectively. It is difficult to detect a cruise missile because it flies at a very low altitude, but once detected, it can be shot down with existing technology and equipment, in contrast to ballistic missile. In the case of BMD, the detection of the targets is relatively easy, but its destruction is a greater technological challenge. To defend against a cruise missile, advanced sensors, which can discriminate between cruise missiles and reflections from the ground, as well as information networks for transmitting target information to interceptors with the least time, are needed. Therefore, an information sharing system, such as the Joint Tactical Information Distribution System of the U.S. Air Force, is indispensable for a cruise missile defense system. This type of system is a compatible element of the RMA. Especially, from the viewpoint of Japan's unique defense strategy a cruise missile defense system should be executed prior to the digitalization of ground units, as well as a BMD system.

## CONCLUSION

The emerging RMA is one alternative for adapting to the strategic environment of the post Cold War world that is highly fluid when compared to the environment it replaces. Under these strategic conditions, the U.S. is taking a course toward the implementation of a system for standoff and precision attack by actively utilizing information technology. Other countries, facing different strategic conditions, will choose alternate paths for their own transformation. For example, the deployment of nuclear weapons is far easier than the deployment of an advanced information network with sophisticated precision weaponry if a nation wishes to engage the U.S.

As is widely known, RMA is not a Revolution *of* military affairs, but a Revolution *in* Military Affairs. Therefore, the direction of the RMA is not decided by technology. It is strongly influenced by the strategic situation and technology is only one of the means for transformation, if needed.

If one starts to think of the character of Japanese RMA, the employment of long range PGMs and stealth aircraft are contrary to Japanese defense strategy. The direction of Japanese RMA should be *Missile Defense and Cooperation with the U.S.* Of course, digitalization of ground units and vessels may be promoted incrementally, but their priority is not as high for Japanese security under the current strategic situation.